



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,986	09/25/2008	Juliane Kluge	UMICORE 0175-US	3398
23719	7590	05/20/2010	EXAMINER	
KALOW & SPRINGUT LLP 488 MADISON AVENUE 19TH FLOOR NEW YORK, NY 10022			BERNS, DANIEL J	
			ART UNIT	PAPER NUMBER
			1793	
			MAIL DATE	DELIVERY MODE
			05/20/2010	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/593,986	<b>Applicant(s)</b> KLUGE ET AL.	
	<b>Examiner</b> DANIEL BERNS	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-5,8-10,13 and 15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,8-10,13 and 15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3-8-10 has been entered.

### ***Terminal Disclaimer ("TD")***

2. As shown by the attached Public PAIR transaction history for the instant application (viewed on 5-18-10), applicant's 3-8-10 "Petition To Withdraw A Recorded Terminal Disclaimer Under 37 CFR 1.182" has been denied/dismissed. It is expected that a written notice of the reasons therefor will be prepared and mailed by the Petitions Officer (who is *not* the Examiner), but the likely reason(s) therefor are as follows: regarding applicant's argument that the 8-17-09 claim set's new inclusion of a "coating [applied] to an inert honeycomb made of ceramic or metal" limitation would negate/overcome the obviousness-type double patenting ("ODP") rejections based upon Ruwisch et al., US 6,858,193 (2005) ("193"), it is noted that '193 claims that its catalyst is disposed upon an inert ceramic or metal carrier. *See* '193 at clm. 10.

Thus, the only limitation not explicitly claimed by '193 on the TD's filing date is that the carrier is honeycomb-shaped. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select such a shape/configuration for '193's inert ceramic or metal carrier, given the well-known status in the art of honeycomb carriers' very high surface area, and thus their ability to provide many more points of catalyst-reactant contact as

Art Unit: 1793

opposed to other carrier configurations (i.e., those of lower exposed surface area). The art's extensive use of honeycomb-type carriers supports the obviousness of selecting such a catalyst carrier configuration. The 8-17-09 TD vis-à-vis '193 remains active and enforceable.

### ***Double Patenting***

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-5, 8-10, 13 and 15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting ("ODP") as being unpatentable over claims 5-24 of copending Application No. 12/444,304 to Grisstede et al., published 3/4/10 as Pre-grant Pub. No. US 2010/0055012 ("012") - instant inventor Kreuzer is also a named inventor in '012. Although

Art Unit: 1793

the conflicting claims are not identical, they are not patentably distinct from each other because they are coextensive in scope and do not manifest any non-obvious differences.

This is a provisional ODP rejection because the conflicting claims have not in fact been patented. Applicant is advised that since '012 is a later-filed application, the ODP rejection may be withdrawn at applicant's request (without necessitating a TD) if/when said rejection is the only rejection preventing the instant application from issue, provided that '012 is/remains rejectable on other/additional grounds. *See* MPEP 804 I.B.1.

### ***Claim Rejections - 35 USC § 103***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. In considering the obviousness rejections below, the applicant should note that the person having ordinary skill in the art has the capability of understanding the scientific and engineering

Art Unit: 1793

principles applicable to the claimed invention. The references of record in the application reasonably reflect this level of skill.

9. Claims 1-5 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruwisch et al., Pre-grant Pub. No. US 2003/0125202 (published 7/3/03) ("Ruwisch")<sup>1</sup>.

Regarding claim 1 as amended, Ruwisch teaches a nitrogen oxide ("NO<sub>x</sub>") storage catalyst comprising an Mg/Al mixed oxide support material doped with rare earth oxide and comprising a NO<sub>x</sub> storage component supported thereon, forming a NO<sub>x</sub> storage material. *See id.* at, e.g., par. 16, 38, 42-44, 46 and 48; Tables 2-3; Ex. 1-7. Ruwisch teaches that employing homogeneous Mg/Al oxide as a support for NO<sub>x</sub> storage materials such as BaO or SrO may "lead to a significant improvement of the NO<sub>x</sub> storage efficiency." *See* Ruwisch at par. 38. Given such a teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select and employ homogeneous Mg/Al oxide as Ruwisch's NO<sub>x</sub> storage component (i.e., second support material). A 1-30 wt. % MgO range within the NO<sub>x</sub> storage material's Mg/Al mixed oxide support is suggested by Ruwisch as claimed. *See id.* at par. 16. Ruwisch's NO<sub>x</sub> storage catalyst further comprises a catalytically-active Pt coating upon an Mg/Al mixed oxide support material. *See id.* at par. 16, 43-44; Table 3; Ex. 1-7. A 1-40 wt. % MgO range within the catalytically-active Pt's Mg/Al mixed oxide support is likewise suggested by Ruwisch as claimed. *See id.* at par. 16. Ruwisch's catalyst is coated on an inert honeycomb made of ceramic or metal. *See id.* at par. 8 and 61; clm. 23.

---

<sup>1</sup> Applicant should note that Ruwisch is within the same document/application family as EP 1317953, appearing in applicant's 9/25/06 Information Disclosure Statement. The citations to Ruwisch above should also be inferred to cite to the appropriate, corresponding passages in EP 1317953, although explicit citations thereto have been omitted for simplicity and to avoid confusion.

Art Unit: 1793

Regarding claim 2, Ruwisch teaches oxides, carbonates or hydroxides of Mg, Ca, Sr, Ba, the alkali metals, and/or mixtures thereof as suitable NO<sub>x</sub> storage components. *See id.* at par. 36-38 and 48; clm. 8.

Regarding claims 3 and 4, Ruwisch teaches oxides of Ce, Nd, Sm, La, Pr, and/or mixtures thereof as suitable rare earth oxides. *See id.* at par. 42 and 48; Table 3; Ex. 1-7.

Regarding claim 5, Ruwisch teaches the inclusion of ~0.5 to ~10 wt. % La<sub>2</sub>O<sub>3</sub> and/or Pr<sub>2</sub>O<sub>3</sub> within its NO<sub>x</sub> storage material's support composition. *See id.* at par. 49. While Ruwisch states that the La<sub>2</sub>O<sub>3</sub> and/or Pr<sub>2</sub>O<sub>3</sub> are doped upon a Ce/Zr mixed oxide support material, given Ruwisch's statement/suggestion of the interchangeability of Ce/Zr mixed oxides with Mg/Al mixed oxides as the NO<sub>x</sub> storage material's support (*see id.* at par. 48), one of ordinary skill in the art at the time of the invention could have reasonably concluded that the ~0.5 to ~10 wt. % La<sub>2</sub>O<sub>3</sub> and/or Pr<sub>2</sub>O<sub>3</sub> dopant would likewise have been appropriate for an Mg/Al mixed oxide serving as the NO<sub>x</sub> storage component's support. Additionally or alternatively, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply a ~0.5 to ~10 wt. % La<sub>2</sub>O<sub>3</sub> and/or Pr<sub>2</sub>O<sub>3</sub> dopant to an Mg/Al mixed oxide serving as the NO<sub>x</sub> storage component's support, given Ruwisch's statement/suggestion of the interchangeability of Ce/Zr mixed oxides with Mg/Al mixed oxides as the NO<sub>x</sub> storage material's support.

Regarding claim 8, Ruwisch teaches the optional presence of Pd along with the Pt coating previously discussed. *See id.* at par. 43-44; Table 3; Ex. 2 and 4-7.

Regarding claims 9 and 10, Ruwisch teaches the optional presence of Rh-coated alumina within its NO<sub>x</sub> storage catalyst. *See id.* at par. 45; Table 3; Ex. 3-7.

Art Unit: 1793

10. Claims 1-5, 8-10, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruwisch in view of Strehlau et al., US 6,350,421 (2002) (“Strehlau”). Regarding claims 1-5 and 8-10, Ruwisch’s teachings are as above. Regarding claims 13 and 15, the difference between the claims and Ruwisch is that the latter does not explicitly teach the presence of its NO<sub>x</sub> storage material in a 3-25 (as in claim 15) or 5-10 wt. % range (as in claim 13). These limitations, however, are taught by Strehlau.

Strehlau teaches a NO<sub>x</sub> storage catalyst comprising a K, Cs, Ba, Mg, Ca, or Sr oxide, carbonate, or hydroxide NO<sub>x</sub> storage material upon a rare earth metal-doped or bi-metallic support, similar to Ruwisch’s NO<sub>x</sub> storage catalyst. *See* Strehlau at col. 4, ln. 55 to col. 5, ln. 26. Strehlau teaches the desirability of employing a NO<sub>x</sub> storage material in amounts of 10-45 wt. % in relation to the NO<sub>x</sub> storage catalyst’s overall weight. *See id.* at col. 5, ln. 60-63. Given Strehlau’s statement of the effectiveness of employing 10-45 wt. % NO<sub>x</sub> storage material, and the fact that said range touches and/or overlaps those claimed, the latter are rendered *prima facie* obvious thereby as it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ such amounts of NO<sub>x</sub> storage material as taught by Strehlau within Ruwisch’s overall catalyst. *See, e.g., In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976) (holding that a *prima facie* case of obviousness exists where claimed ranges “overlap or lie inside ranges disclosed by the prior art”); MPEP § 2144.05.

### ***Response to Arguments***

11. Applicant's 3-8-10 arguments have been fully considered but they are not persuasive. Notwithstanding applicant’s assertion of unexpectedly increased thermal durability by employing homogeneous Mg/Al oxide as its first support material (for, e.g., Pt) and its second



Art Unit: 1793

support material (for the NO<sub>x</sub> storage component), applicant's argument that the prior art of record does not show the obviousness of employing homogeneous Mg/Al oxide as a second support material is not persuasive. Ruwisch does indeed suggest such a second support material, listing it as an appropriate material therefor and making the selection thereof *prima facie* obvious. See Ruwisch at par. 48; MPEP 2141 III; *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 335, 65 USPQ 297, 301 (1945) ("Reading a list and selecting a known compound to meet known requirements is no more ingenious than selecting the last piece to put in the last opening in a jig-saw puzzle."); MPEP 2144.07.

Further, as stated above, Ruwisch teaches that employing homogeneous Mg/Al oxide as a support for NO<sub>x</sub> storage materials such as BaO or SrO may "lead to a significant improvement of the NO<sub>x</sub> storage efficiency." See Ruwisch at par. 38. This statement also lends sufficient motivation to render selecting and employing homogeneous Mg/Al oxide as a NO<sub>x</sub> storage component (i.e., second support material) as *prima facie* obvious. In response to applicant's argument that unexpectedly increased thermal durability was achieved by employing homogeneous Mg/Al oxide as its first support material (for, e.g., Pt) and its second support material (for the NO<sub>x</sub> storage component), the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (BPAI 1985). In other words, the Examiner's motivational rationale for selecting Mg/Al oxide as the NO<sub>x</sub> storage component's support material need not be the same as selected or discovered by applicant.

Art Unit: 1793

Regarding applicant's assertion that an unexpectedly increased thermal durability was achieved by employing homogeneous Mg/Al oxide as its first support material (for, e.g., Pt) and its second support material (for the NO<sub>x</sub> storage component), given the obviousness of employing homogeneous Mg/Al oxide as both the first and second support materials as stated above, the improved thermal durability would have been an obvious and/or inherent property of the resulting catalyst. This conclusion of obviousness and or inherency is buttressed by the Federal Circuit's holding that "[w]hen a chemical composition is claimed, a *prima facie* case of obviousness under Section 103 may be established by [the prior art's teaching of] a similar composition, the presumption being that similar compositions have similar properties." *See, e.g., In re Soni*, 54 F.3d 746, 34 USPQ2d 1684, 1687 (Fed. Cir. 1995) (internal citations omitted); *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985); MPEP 2112.01 (inherency).

Lastly, should applicant argue that Ruwisch does not teach two different catalyst components (i.e., Pt upon an Mg/Al oxide particle and BaO upon a different Mg/Al oxide particle) but rather a dually-impregnated/disposed support (i.e., a single Mg/Al oxide particle with Pt and BaO impregnated/disposed thereon),<sup>2</sup> Ruwisch does indeed teach that its noble metal component and NO<sub>x</sub> storage component are impregnated/disposed upon separate support materials. *See id.* at, e.g., Table 3. While Table 3's examples mainly employ a Ce/Zr oxide as a support for its NO<sub>x</sub> storage component, the substitutability of Mg/Al oxide for Ce/Zr oxide as

---

<sup>2</sup> NOTE: Examiner would not necessarily agree with such an argument *ab initio*, but would consider such an argument if clearly illustrated, provided that the claims were amended to unmistakably claim that the noble metal and NO<sub>x</sub> storage component were *not* to be impregnated/disposed upon the same support particle, but upon separate support particles even if the support particles were of the same type. Examiner's discussion of such a prospective argument is made simply to provide applicant with a fuller understanding of Examiner's position regarding the claims and prior art.

Art Unit: 1793

discussed above is re-asserted. Any claim allegedly allowable by virtue of unexpected results must be limited to the subject matter which gives rise thereto.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL BERNIS whose telephone number is (571)270-5839. The examiner can normally be reached on Monday thru Thursday, 9AM-6PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached at (571)272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. B./ May 18, 2010

Examiner, Art Unit 1793

/Stuart Hendrickson/

Primary Examiner, Art Unit 1793